PUBLIC HEALTH REPORTS

VOL. 53 FEBRUARY 18, 1938 NO. 7

PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES

January 2–29, 1938

The accompanying table summarizes the prevalence of eight important communicable diseases, based on weekly telegraphic reports from State health departments. The reports from each State are published in the Public Health Reports under the section "Prevalence of disease." The table gives the number of cases of these diseases for the 4-week period ending January 29, the number reported for the corresponding period in 1937, and the median number for the years 1933–37.

DISEASES ABOVE MEDIAN PREVALENCE

Measles.—The number of cases of measles rose from approximately 33,000 for the preceding 4-week period to more than 71,000 for the 4 weeks ending January 29—an increase of about 38,000 cases. The current incidence is more than four times as high as that for the corresponding period in each of the years 1937 and 1936, in both of which years the incidence was low, and more than 1.3 times that in each of the years 1935 and 1934, in both of which years the incidence was high. The 5-year median for this period is 21,656, and is for 1933, a more normal measles year; the current incidence is more than 3.5 times that figure. In the New England region the incidence was relatively low, and in the West South Central, Mountain, and Pacific regions it followed the seasonal level fairly closely; but in other areas the numbers of cases for the current period were from more than 2 to more than 11 times the median.

Scarlet fever.—The number of cases of scarlet fever reported for the current period was 23,787, approximately the same as the number (23,617) reported for the corresponding period in 1937, which figure also represents the median incidence for the years 1933–37. The North Central regions continued to report a relatively high prevalence, while in the Middle Atlantic region the number of cases was considerably below the expected seasonal level, and in the remaining regions the incidence was close to normal.

Number of reported cases of 8 communicable diseases in the United States during the 4-week period Jan. 2–29, 1938, the number for the corresponding period in 1937, and the median number of cases for the corresponding period 1933–37 [1]

Geographic division	Current period	1937	5-year median	Current period	1937	5-year median	Current period	1937	5-year median	Current period	1937	5-year median
	Diphtheria			Influenza [2]			Measles [3]			Meningococcus meningitis		
United States [1]	2,761	2,489	3,385	11,628	108,110	34,610	71,206	16,688	21,656	377	542	362
New England	50	44	100	77	3,941	656	2,287	5,999	3,612	11	17	9
Middle Atlantic	368	455	567	122	4,331	1,018	24,928	3,432	7,412	62	97	50
East North Central	630	441	616	354	10,010	3,080	23,201	600	3,281	45	101	101
West North Central	247	138	376	686	28,178	2,253	6,142	212	2,477	28	31	33
South Atlantic	487	609	539	3,146	7,313	7,313	7,875	2,776	3,066	77	147	54
East South Central	221	205	300	2,284	4,488	4,488	3,695	324	324	96	66	39
West South Central	478	377	562	3,908	11,091	2,900	989	1,428	998	25	32	30
Mountain	123	66	86	407	15,048	2,602	1,579	1,390	1,390	17	30	19
Pacific	157	154	196	644	23,710	1,411	600	527	1,079	16	21	21
	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
United States [1]	85	100	98	23,787	23,617	23,617	2,435	1,144	751	464	487	629
New England	1	1	6	1,816	1,661	1,661	0	0	0	17	36	14
Middle Atlantic	8	6	12	4,828	6,088	5,966	0	46	0	54	72	74
East North Central	16	20	10	8,170	7,710	7,710	508	194	154	31	63	63
West North Central	6	10	8	3,827	3,676	2,030	916	621	180	71	17	47
South Atlantic	8	16	9	1,150	1,183	1,245	13	3	11	87	89	103
East South Central	13	22	11	612	620	620	224	6	7	30	55	55
West South Central	16	6	5	996	351	711	143	26	44	115	101	101
Mountain	3	3	3	990	750	750	255	128	58	24	22	22
Pacific	14	16	16	1,398	1,578	1,551	376	120	120	35	32	37

[1] 48 States. Nevada is excluded and the District of Columbia is counted as a State in these reports.
[2] 44 States and New York City.
[3] 46 States. Mississippi and Georgia are not included.

Smallpox.—A total of 2,435 cases of smallpox was reported for the 4 weeks ending January 29, as compared with 1,144, 765, and 751 for the corresponding period in 1937, 1936, and 1935, respectively. The current incidence is the highest since 1932, when 2,084 cases were reported for this period. Minnesota reported 302 cases, Illinois 246, Iowa 239, Missouri 206, Indiana 190, Kentucky, 165, California 160, Idaho 142, and Washington (State) 140—a total of 1,790 cases as compared with 610 for these States for the corresponding period in 1937. The remaining cases were distributed among the other States, the number (645) being about 20 percent in excess of that for the same States last year. The New England and Middle Atlantic regions remained free from the disease, and the South Atlantic region reported 13 cases, a larger number than last year, but only slightly above the 1933–37 median level.

Meningococcus meningitis.—For the current period 377 cases of meningococcus meningitis were reported—about 70 percent of the figure for the corresponding period in 1937 and about 60 percent of that for 1936. In 1935, 1934, and 1933 the numbers of cases for this period totaled 307, 210, and 362, respectively. While the current incidence is only slightly above that of the 1933–37 median, it represents the highest incidence for this period since 1931. The disease is most prevalent in the Middle and South Atlantic and East South Central regions, each of which reported a very considerable increase over the normal seasonal expectancy. The same regions reported a high incidence at this time in 1937. In the East North Central region the incidence was the lowest in recent years, and other areas reported about the normal seasonal incidence.

DISEASES BELOW MEDIAN PREVALENCE

Diphtheria.—The downward trend of diphtheria was interrupted by a 10-percent increase during the current period over the corresponding period in 1937. The Middle Atlantic and South Atlantic regions reported decreases from last year's figures for this period, and in the Pacific region the incidence was practically the same as last year, but in all other regions it was considerably higher, the increases ranging from 10 percent in the East South Central regions to about 85 percent in the Mountain. While the disease was more prevalent than last year in some regions, the number of cases (2,761) for the country as a whole was only about 80 percent of the 1933–37 median number for this period.

Poliomyelitis.—The number of cases of poliomyelitis reported for the 4 weeks ending January 29 was 85, as compared with 100, 79, and 115 for the corresponding period in the years 1937, 1936, and 1935,

respectively. The West South Central division reported 16 cases, as compared with 6 last year and with a median of 5, but in all other regions the incidence was about normal for the season. For the entire country the number of cases was slightly lower than the average seasonal level.

Typhoid and paratyphoid fever.—The number of typhoid fever cases was slightly below that for the corresponding period in 1937, and more than 20 percent below the 1933–37 median for this period. Due principally to a rather high incidence in Missouri (51 cases) and Texas (67 cases), the incidence in the West North Central and West South Central regions was somewhat above the seasonal expectancy. In the Middle Atlantic, East North Central, and East South Central areas it was the lowest in recent years, and in the New England, Mountain, and Pacific regions it was about normal.

Influenza.—Reports indicated only the normal seasonal increase of influenza during the 4 weeks ending January 29, with 11,628 cases reported, approximately 4,100 more than for the preceding 4 weeks. In relation to preceding years this number was only about 10 percent of that reported for the corresponding period in 1937, but was about 10 percent above that in 1936. A small outbreak of influenza that was comparable in size to the epidemic of the winter of 1932–33, occurred in January last year, and in 1935, the year that occupies the median position in the years 1933 to 1937, there was a minor outbreak in the eastern part of the country at this time. The highest incidence for the current period was reported from the South Atlantic and South Central regions, but of those areas only the West South Central showed any excess over the normal seasonal incidence.

MORTALITY, ALL CAUSES

The average mortality rate from all causes in large cities for the 4 weeks ending January 29, based on data received from the Bureau of the Census, was 12.6 per 1,000 inhabitants (annual basis). For the corresponding period in 1937, 1936, and 1935 the rates were 15.2, 13.4, and 13.3, respectively. The presence of a minor influenza epidemic with a relatively high death rate from influenza and pneumonia was mostly responsible for the high rate of 1937. The average rate for the years 1932–36 is 12.9.

THE ROLE OF AIRPLANE DUSTING IN THE CONTROL OF ANOPHELES BREEDING ASSOCIATED WITH IMPOUNDED WATERS

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Airplane dusting of paris green on impounded waters must be perfected to control production therefrom of the malaria mosquito of the Southeastern States (*Anopheles quadrimaculatus*). Until biological control methods are improved, no other known method is economically possible where there are large expanses of shallow "sheet-water" overgrown with aquatic vegetation. Such expanses are now measured in thousands of acres as impoundages have become larger. Flood-control projects and river basin improvements planned for the immediate future indicate a great increase in the number of large impoundages. Experience with airplane dusting reveals problems presented by impounded waters which have not arisen elsewhere. As the solution of these problems involves much labor and expense, research opportunities have been infrequent. Today it becomes imperative to solve them.

The Tennessee Valley Authority fortunately has set up a research unit within its malaria control section for study of malaria control methods on impounded waters. This unit cooperates with the Public Health Service and all other organizations interested in the control of malaria, and offers an unsurpassed field for study of the malaria mosquito and methods for controlling its production. The paper presented here is a preliminary report of one such study which forecasts solution of the major problems connected with airplane dusting on impounded waters.—L. L. Williams, Jr., *Senior Surgeon, U. S. Public Health Service.*

Introduction

Impounding the Tennessee River is the basic feature of the plan for development of the Tennessee River Valley by the Tennessee Valley Authority. When the program of dam construction has been completed, the river will have been converted from a flowing stream into a chain of lakes. At the present time two lakes have been impounded; another will be created in April 1938, and two more in 1939, exclusive of lakes on tributary streams.

Endemic malaria already exists rather generally throughout the Tennessee Valley in western Tennessee and northern Alabama, and small endemic foci are known to be present in the lower portion of the Valley in eastern Tennessee. This malaria is due to transmission by mosquitoes breeding in collections of water in the flood plains of the Tennessee River and its tributaries, in lime sink ponds, and in other natural breeding places. While the impounding of the river will destroy many of these breeding places, the resulting lakes will create, potentially at least, a much larger breeding surface for *Anopheles quadrimaculatus*, the only proved natural vector of malaria in this

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region. Therefore, the situation existing now and that which will ultimately present itself are of especial significance to persons interested in malaria and its control; and an opportunity for the study of malaria associated with impounded water and a responsibility for the control of such malaria has been created which is without parallel in this country. These facts are recognized by the Authority and a Division of Malaria Studies and Control, a functional unit of the Health and Safety Department, has been organized to carry out a comprehensive research and control program.

It is the hope and belief of the personnel of this Division that we shall eventually be able to effect a biological control of mosquito breeding in impounded waters; but until such a program has been developed, we are obligated to utilize all other means at our disposal to effect mosquito control. Accordingly, we have made extensive use of larvicides while fully realizing the limitations and cost of such a program. During the past 3 years a part of our research program has been directed toward the development of cheaper larvicidal materials and methods for their application.

This report deals with our experience with airplane dusting. At the end of the 1935 season we concluded that airplane dusting was not a practical method for applying larvicidal dusts to breeding areas of limited extent along a tortuous shore line but that it offered definite promise as a means of treating large expanses of water surface. Our further experience during the past 2 years has strengthened these latter convictions and has resulted in a considerable improvement of equipment and a more efficient dusting technique, with a commensurate reduction of operation cost.

The first part of this report is a general discussion of our experience with acreage dusting. The second part is concerned with certain experiments carried out during 1937 which were designed to determine the efficiency of our routine operations. These latter experiments were performed with the assistance of Mr. H. A. Johnson, of the United States Public Health Service, and we wish to express our gratitude to Senior Surgeon L. L. Williams, Jr., for making the services of Mr. Johnson available to us. We also wish to express our appreciation for the advice and help given by Mr. B. R. Coad, of the Delta Air Corporation, who has acted as a consultant during the summer of 1937 and whose long experience with the application of insecticidal dusts by means of airplanes has been of tremendous value in the development of this work.

Part I.—General Discussion

The sudden conversion of a flowing stream into a very large lake is inevitably attended by major physical and biological changes which begin as soon as the pool level rises above the original channel

of the stream and continue for a period of several years. These changes form such an interesting sequence of events and are so often associated with profuse *Anopheles* breeding that their essential features merit description here.

The primary physical change consists in the flooding of all land lying below the elevation of the spillways at the dam. Small tributary streams become large expanses of quiet water and the impounded stream, now extending far beyond its flood plains, becomes a broad lake. The shore line of the new lake is straight or tortuous, precipitous or flat, depending upon the topography of the region. The original shore line at maximum pool level is only temporary, for erosion by wave action begins to take place at once. Inundated terrestrial vegetation is killed, but its vestiges appear for a long time in the form of floating debris, and, with other types of flotage, it produces food and protection for mosquito larvae. In the course of time the terrestrial marginal growth becomes replaced by aquatic or semiaquatic vegetation, and herbaceous plants may establish themselves if the pool level is lowered during the season of their growth. Such profound physical changes rarely, if ever, occur in natural breeding places.

When a lake is impounded in a region of little relief, a wide variety of breeding places of *A. quadrimaculatus* may be created. The lower part of such a reservoir usually has a relatively precipitous shore line; the middle portion is characterized by broad expanses of shallow water; and the upper portion is within the old channel of the river. *Anopheles* breeding is so constantly associated with vegetation, alone or with flotage, that in the final analysis control of such breeding becomes the control of the conditions that make it possible. Thus it can be seen that the problem of the control of *Anopheles* breeding associated with impounded water is in many respects fundamentally different from that of natural waters.

We have been watching the events described above take place in Lake Wheeler since its impounding in April 1937. This lake is in northern Alabama, is 74.1 miles in length, has a shoreline of 1,063 miles and a surface area of 67,100 acres. Following the clearing of the reservoir a considerable growth of sprouts from stumpage occurred which we were unable to remove prior to the impounding of the lake. As a consequence, at maximum pool level the tops of this dense vegetation penetrated the lake surface in many areas, particularly in the middle portion of the reservoir. Since the lake was created in the spring, flotage which did not have an opportunity to become waterlogged and sink was held in large amounts throughout the entire summer by this emergent vegetation and also by dead emergent annual plants in the very shallow areas. With almost ideal breeding condi-

tions thus created, involving some 10,000 acres of water, very heavy production of *A. quadrimaculatus* began in June.

Control of breeding by larvicidal operations was complicated by the fact that most of this surface occurred in water too shallow to allow the operation of larvicidal boat units. We had anticipated this situation and had concluded that the only practical means for the application of larvicides to such areas was by airplane. Accordingly we were ready to establish airplane dusting operations at the beginning of the 1937 season.

Two airplanes were put into service early in June and were used throughout the season. One of these airplanes is the property of the Tennessee Valley Authority and had been used for airplane dusting during the seasons of 1935 and 1936; the other is owned by the Delta Air Corporation of Monroe, La., and was operated by this organization under a service contract with the Authority.

The airplane owned by the Authority is a Stearman, model 4–D, open biplane powered with a 300-horsepower motor. During the winter of 1936–37 its dusting equipment was completely redesigned. The new equipment consisted of a plywood hopper of approximately 21 cubic feet capacity, which was installed in front of the pilot's cockpit so as to place the dust load as near the center of gravity as possible. The top of this hopper is curved to conform to the shape of the fuselage and is covered with airplane fabric to prevent buckling of the plywood. The interior of the hopper was treated with several coats of pigmented airplane fabric "dope" for protection. The hopper is loaded through a hatch at the top. The dust is discharged through a short metal throat extending from the bottom of the hopper through the fuselage covering to the discharging funnel or venturi. This throat extends the entire width of the fuselage. The discharging funnel is made of 16-gage aluminum and has a maximum depth of 5 inches, but the depth may be adjusted by raising or lowering the lower section. Agitation of the dust in the hopper is provided by two barrel-type agitators which are driven by a four-bladed wooden impeller located on the lower left wing near the fuselage. The action of this impeller is transmitted through a 50 to 1 reduction gear, the drive shaft of which turns the upper agitator which in turn operates the lower agitator by a chain and sprocket arrangement. The release valve is of the sliding type and consists of a ¼-inch aluminum plate traveling in brass guides. It is operated from the pilot's cockpit by means of a lever and is calibrated and can be set for six different settings.

The airplane operated by the Delta Air Corporation is a Huff-Daland open biplane especially designed for crop dusting. Its dusting equipment is not unlike that described above, except that the hopper is somewhat smaller, having a capacity of approximately 16 cubic

feet. This airplane has thick, high-lift aerfoil sections of full cantilever construction but connected at the tip by wing struts. It is powered by a 200-horsepower motor.

The construction features of the dusting equipment installed in our airplane were developed as a result of our 3 years' experience with other apparatus and in part were modeled after equipment in crop-dusting airplanes. The dust cloud liberated can be positively controlled with this equipment and there is little or no leakage of dust into the fuselage, a condition which formerly gave us considerable concern.

The disadvantage of the use of an airplane of the type owned by the Authority is that it must be flown at a high speed in order to maintain its altitude and to clear obstructions. There is always a tendency for planes of this type to "mush" in a sudden climb, that is, to continue in the direction of the line of flight while gaining altitude. The thick wing sections of the airplane operated by the Delta Air Corporation and its other construction features permit a more positive control of the airplane. This airplane flies "tail-high," and its pilot sits higher in the cockpit, allowing greater vertical visibility than is possible in planes of the type owned by the Authority.

There was little difference between the dust clouds liberated by the two airplanes. The greater speed of the Authority's airplane and its greater load-carrying capacity made its use more economical for dusting areas at a considerable distance from the nearest landing field and for dusting broad expanses of breeding surface. The contract plane, especially efficient for dusting "close" situations, was principally used for this type of operation and for dusting areas near one of our loading fields.

Before actual dusting operations were begun, the rate of flow of soapstone dust was carefully calibrated for the various valve openings. We assumed that the volumetric rate of discharge of soapstone dust would approximate that of the paris green-soapstone mixtures to be used, and subsequent tests showed that this assumption was correct within the limits of the accuracy of timing and valve setting. The distribution of paris green was determined for various altitudes and rates of flow by counting paris green particles collected on slides which had been placed along the flight path of the airplane. As a result of these experiments we estimated that a 200-foot path was effectively covered by dust liberated at an altitude of approximately 25 feet, and to a large extent we based our routine operations on these data. As a matter of fact, it was our practice to lap the estimated 200-foot dust paths to assure adequate coverage.

The larvicidal dust used in this work was composed of paris green and powdered soapstone in varying proportions. The first dust used contained 10 percent paris green by volume and was distributed at

the rate of about 0.5 pound per acre, assuming a lethal dust path 200 feet wide. This operation was not uniformly effective as judged by collections of larvae before and after dusting, and rising adult densities in collecting stations, observations which were routinely made as a check on the efficiency of our operations. The concentration of paris green in the dust was raised until it represented 20 percent of total dust volume, and the use of this dust produced satisfactory results. As judged by larvae collections, practically 100 percent lethal effect was obtained in areas not protected by dense vegetation. On three occasions dead larvae were found in mats of algae 30 minutes after a dusting operation, and dissection of these larvae revealed paris green in their guts.

Airplane dusting was carried out in the early morning, and it has been our practice to begin dusting as soon as there is light enough to see the dust cloud. At this time there is less wind than at any other time, and the air is not "bumpy," as becomes the case later in the morning. As a rule, our dusting schedule for one day was complete by 6 a. m. There is one possible disadvantage to dusting in the early morning; namely, that the vegetation is covered with dew and may therefore intercept and hold dust that would not be intercepted by dry vegetation. In our experience it is not often practicable to dust later in the day, except occasionally in the late afternoon.

Our airplane dusting in 1937 was done at an average altitude of approximately 20 feet. Dusting was rarely done at an altitude of over 30 feet. Flying at this altitude permitted more accurate placing of the dust cloud because it was less influenced by drift, which was always present to some extent. We also believed that low flying over densely overgrown breeding places was especially desirable, since the propeller blast tends to blow the dust through the vegetation.

During the season May 15 through September, the two airplanes flew a total of 264 hours and 33 minutes and applied 316,000 pounds of mixed dust containing approximately 25 percent, or 79,000 pounds, of paris green. It is estimated that a total of 83,700 acres of breeding area were treated, with slightly less than an average of 1 pound of paris green per acre.

Cost figures on the contract airplane are more representative than on the Tennessee Valley Authority airplane, owing to some unusual cost charges and the necessity of basing this airplane at a distance of 50 miles from the center of dusting operations.

The contract plane flew a total of 194 hours and 38 minutes at a cost of $42.90 per hour and dusted approximately 72,650 acres at a cost of $0.367 per acre treated. This does not include inspection work and supervision.

Part II.—Experiments Conducted in 1937

As previously stated, we were unable in certain situations to secure efficient results with paris green dust applied by airplane. Larvae collections were made more or less at random over an area which had been dusted on the same day and the collections were usually begun approximately 3 hours after the completion of dusting. We were anxious to examine our airplane dusting operations in a more critical manner and had hoped to be able to carry out a series of experiments to this end in a portion of Lake Wheeler which was being routinely treated at weekly intervals. This we were unable to do because the pool level in Lake Wheeler was constantly shifting throughout the summer. We eventually established an experimental area with a constant pool level in a portion of the Wheeler Reservoir.

The area selected for experimental work was a small, natural spring-fed swamp, a part of the Wheeler Reservoir which had been cleared in 1935. This area lies one-half mile south of Harris Station on the Louisville & Nashville Railroad and immediately east of the railroad embankment. The entire tract is about 50 acres in extent, but only the western half, an area approximately 1,400 feet square, was used in the experiment. This area was staked off into flight paths by placing poles 200 feet apart in a north and south direction and approximately 250 feet apart in an east and west direction. This area permitted flights of the airplane along the stake rows in an east and west direction with definite spacings of 200 feet.

During the month of August the pool level of Lake Wheeler was much lower than we anticipated and the area under consideration contained very little water. This condition was rectified by placing a small dam across the outlet of the swamp so that the streams from several springs could inundate the swamp.

Referring to figure 1, it will be noted that the first north to south line of 200-foot interval stakes is numbered 1A to 5A, inclusive; the second row, 1B to 5B, inclusive, and so on across the area. To the north of this main staked area a supplemental area 600 feet in length was outlined in a similar manner, the numbering being 10A–11A–1A, 10B–11B–1B, etc. Vegetation present in the experimental area during the period under consideration consisted of a high, dense, bushy second growth of sprouts of tupelo gum, button ball bush, sycamore, black willow, and similar shrubs in the area between lines 4 and 5. It was very thick and grew to a height of 8 feet or more, with the branches interlaced horizontally, thus presenting vertical barriers to a dust cloud liberated from above (fig. 2). This area also contained a more or less dense undergrowth of plants. Low grasses, sedges, smartweed, and water lilies predominated in the area generally delineated by stakes 1A–2B–2C–3C–3B–3A–2A (fig. 3). This low vegetation grew to heights of 12 to 16 inches and was more or less open

vertically. The remainder of the area contained relatively open mixtures of the vegetation types described (fig. 4). The entire area further contained many hundreds of tree stumps of all sizes. Very

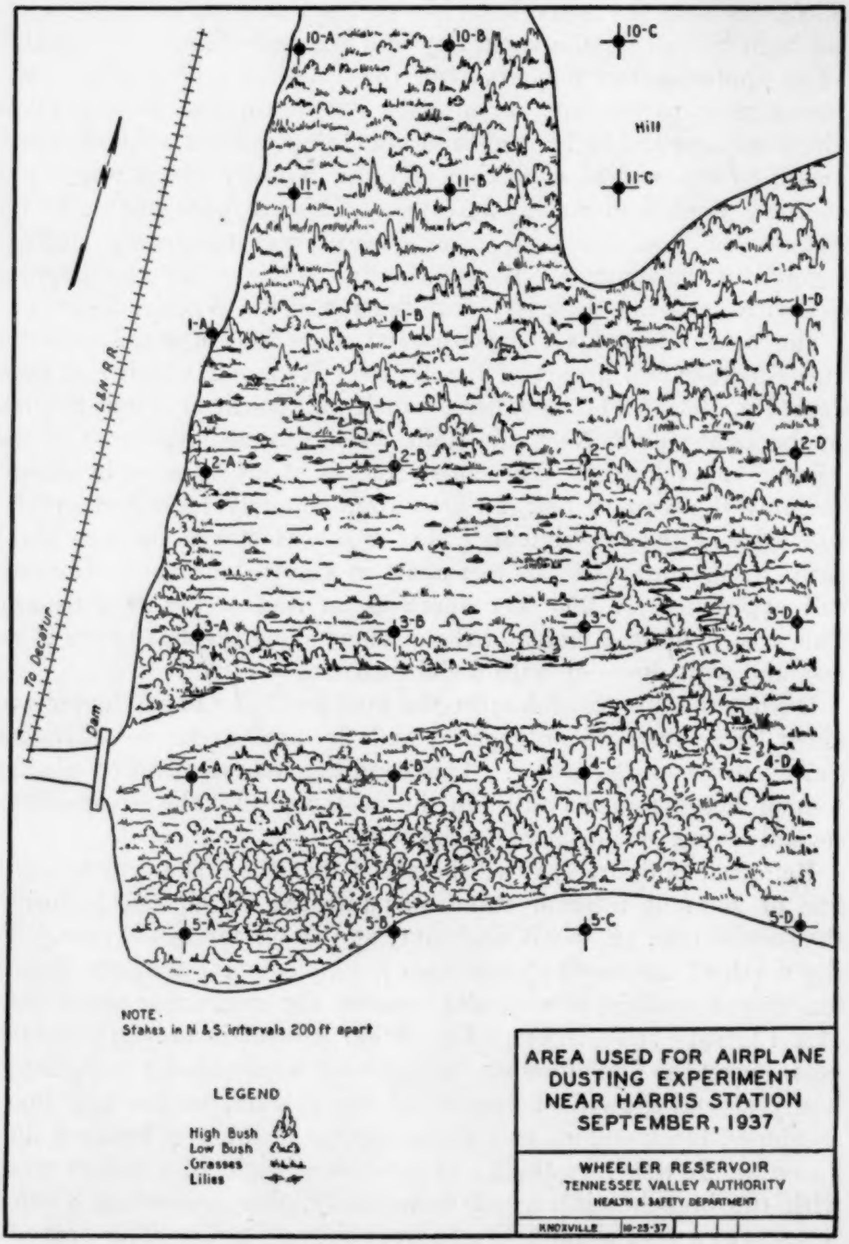

FIGURE 1.—Area used for airplane dusting experiment near Harris Station, September 1937.

little algae was encountered during the period of the experiments. The experimental area as a whole conforms very closely to the type situation with which we had to contend throughout the summer.

FIGURE 2.—Dense second-growth vegetation and undergrowth of annual plants, Harris Station experimental pool, Wheeler Reservoir.

FIGURE 3.—Grasses, sedges, smartweed, and waterlilies, Harris Station experimental pool, Wheeler Reservoir.

FIGURE 4.—Varieties of vegetation, Harris Station experimental pool, Wheeler Reservoir.

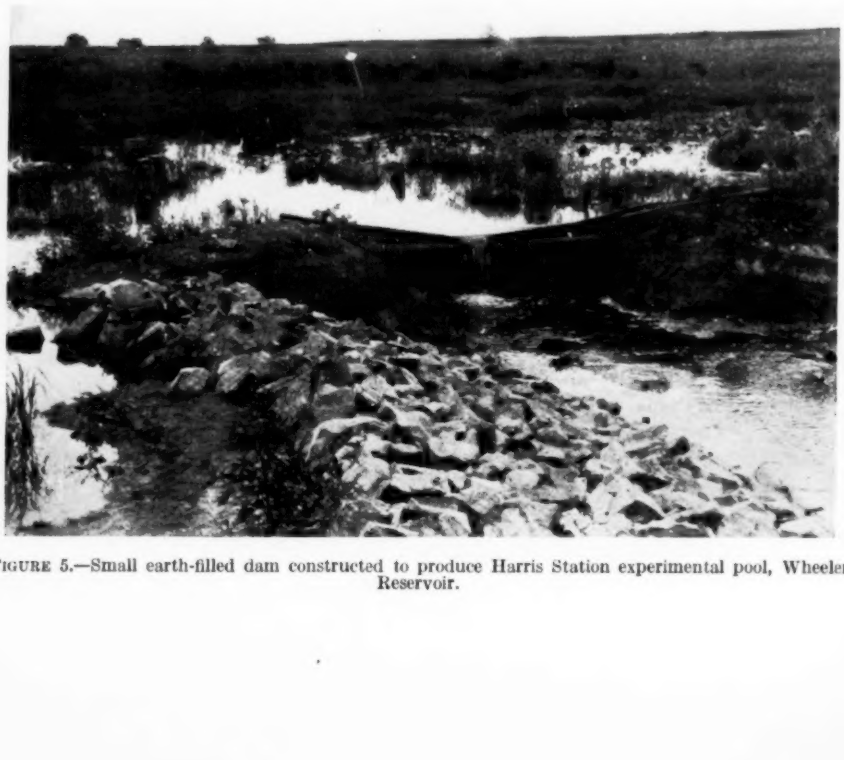

FIGURE 5.—Small earth-filled dam constructed to produce Harris Station experimental pool, Wheeler Reservoir.

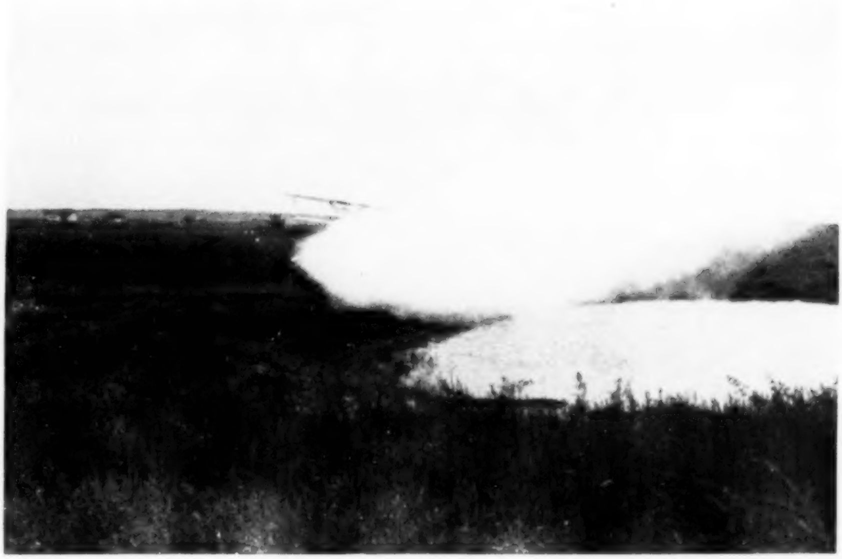

FIGURE 6.—Huff-Daland dusting plane, treating Harris Station experimental pool, Wheeler Reservoir. Altitude 10 feet.

FIGURE 7.—Huff-Daland dusting plane, treating Flint Creek area. Altitude 50 feet.

FIGURE 8.—Stearman dusting plane, treating a swamp near Muscle Shoals airport. Note dust cloud in left background which was laid down just previous to cloud in process of liberation.

During the month of June moderately heavy *Anopheles* breeding was encountered throughout the experimental area; but as the pool level was lowered, this breeding decreased. The small dam was placed across the outlet of the swamp on August 15, and a constant level pool was obtained about August 20 (fig. 5). *Anopheles* breeding slowly returned, and by August 25 approximately two larvae per dip could be obtained in the experimental area. Extensive observations of the area demonstrated a rather uniform amount of *Anopheles* breeding throughout the entire area, with slightly higher density of larvae in the densely overgrown portion.

EXPERIMENT I

The first experiment was performed on the morning of August 27. The day was warm and clear, with a breeze of approximately 2 miles per hour blowing toward the north. At 6:30 a. m., two flights were made, one along 4A–4B–4C, and the other along 2A–2B–2C. A dust composed of 28.4 percent paris green by weight in powdered soapstone was released at a height of 20 to 25 feet during these flights. The dust cloud drifted slightly toward the north.

In the flight along line 4, the hopper valve was opened 2 inches, representing one-half the total possible opening. This liberated approximately 125 pounds of mixed dust per minute, or 1 pound of paris green per acre, assuming an effective dust path of 200 feet and a dusting rate of 33 acres per minute. In the flight along line 2 the valve was opened 1.5 inches, or three-eighths of the total possible opening, liberating approximately 57 pounds of dust per minute, or 0.5 pound of paris green per acre.

On the previous day dippings were made to determine the presence of larvae along the lines A, B, and C. Four dippings were made at 10-foot intervals across each line and the results recorded. Three hours after dusting, similar dippings were made and recorded. The following comparisons were observed from these records:

Line A.—This line was characterized by a low type vegetation except for the interval 4A to 5A, which was densely brush covered. A 100 percent mortality of *Anopheles* larvae was found in the interval 1A to 4A. The mortality in 4A to 5A was 53 percent.

Line B.—Approximately one-half of this line contained low type vegetation, and in this area a mortality of 94.4 percent was found. The rest of this line contained dense vegetation and showed a mortality of 72.8 percent.

Line C.—This line contained second growth bushes but the growth was not very dense. The mortality here was only 7 percent, but this is probably due to the fact that the dust liberation was stopped at the C line of stakes and this line received only a partial dusting.

One hundred glass slides were placed in hidden positions along the B line before the dusting flight was made. A paris green particle count of these slides showed only one-half as many particles of paris green per square inch from slides placed in the densely overgrown area as was observed from slides placed in the low, open vegetation. On many slides from the area 4B to 5B no paris green particles could be found.

It appears from this experiment that—

1. *Anopheles* larvae destruction was almost complete over a 600-foot swath containing grasses, sedges, and lilies, when 28 percent paris green dust was applied by an airplane at an altitude of 20 feet.

2. The application of larvicides in the densely overgrown area was from 53 to 72.8 percent effective.

3. In the area in which most effective results were obtained, the effective swath width was at least 300 feet. This corresponds to an average coverage of less than 0.5 pound of paris green per acre.

EXPERIMENT II

The second experiment was performed on September 9. The day was cloudy and the humidity was high, since rain had been falling intermittently for about a week. A breeze of approximately 10 miles per hour was blowing toward the north. The water temperature ranged from 69° to 72° F.

At 8 a. m. a flight was made along line 4, liberating a dust containing 28.4 percent paris green, by weight, in powdered soapstone. The valve was open 2 inches, discharging approximately 1 pound paris green per acre. Another flight was made along line 1, liberating a dust containing 28.4 percent paris green, by weight, in Alberoyd.[3] The rate of dust liberation was approximately 1.2 pounds paris green per acre.

These flights were made at an altitude of 6 to 10 feet, and a dense cloud was literally driven to the water surface under the plane in both instances. Due to a brisk cross wind there was an immediate drift of the dust cloud toward the north, practically no dust being visible south of the plane.

Dippings were made for *Anopheles* larvae at 10-foot intervals along lines B and C previous to, and 3½ hours after, dusting. Larvae collections indicated a mortality averaging 50 percent or less over the entire area covered by the dust. It is of interest to note that there was no 100 percent lethal path, even directly under the plane.

On September 10, *Anopheles* larvae were plentiful between rows 4 and 5. Wind and weather conditions were similar to those of the

[3] A soapstone dust weighing 70 percent more per cubic foot than the soapstone dust we routinely employ as a diluent.

day before. A flight was made along row 5 at an altitude of 6 to 10 feet, liberating a dust containing 18.4 percent paris green, by weight, in Alberoyd, or approximately 1.1 pounds paris green per acre.

Larvae collections across rows B and C indicated an average mortality of 60 percent. Again there was no path of total destruction. It is interesting to note that *Anopheles* larvae of all sizes were recovered between rows 4 and 5, where a very heavy dust cloud was seen to penetrate into the bushes.

The results of this experiment indicate that there is no apparent difference in the power of paris green to kill *Anopheles* larvae that is due to a difference in the inert diluent used in the dust. As will be shown subsequently, in a later test almost complete destruction of *Anopheles* larvae was obtained where the present test failed. Since the water temperatures were practically the same then as on this date, we may assume that conditions other than water temperature were probably involved. In the second experiment, as in the first, slides were placed along row B. Dust counts made on these slides showed large numbers of paris green particles per square inch wherever the dust cloud was visible. This fact may indicate that some factor connected with extremely low flying or the brisk cross wind might have been responsible for the low mortality recorded.

EXPERIMENT III

A third experiment was performed on September 16. The day was clear and cool, and a dead calm prevailed. Water temperatures ranged from 68° to 70° F. At 6:15 a. m. a flight was made along each of the stake lines, 1, 2, 3, 4, and 5, at an altitude of approximately 75 feet. This test flight closely approximated a routine dusting operation except for the altitude. The dust used was composed of 28.4 percent paris green, by weight, in soapstone, and was liberated at a rate of 0.8 pound per acre of paris green.

The dust cloud appeared to become somewhat attenuated before reaching the water surface. The line 2A to 2D seemed to receive no dust, and at the time of the flight it was believed that this particular line had been untouched by the dust cloud. No distinct drift of dust cloud was observed.

Four hours after dusting, the usual dippings were made across the B and C lines. In the interval 1C to 3C an almost total destruction of *Anopheles* larvae was noted, whereas between 3C and 5C numerous larvae were present. Along the B line 99 percent destruction was found except in the interval 4B to 5B, where larvae of all stages were encountered. The line 2A to 2D, which, it will be recalled, apparently received no dust, exhibited a 100 percent reduction in *Anopheles* larvae.

The entire afternoon was spent in dipping at random over the area, and the findings indicated conclusively that this dusting operation was practically 100 percent effective except in the densely overgrown area between stake rows 4 and 5.

Comment

As a result of our experiences to date we believe that airplane dusting for *Anopheles* control is a practical and relatively economical larvicidal operation. We have secured uniformly excellent control of *Anopheles* breeding with this operation in situations characterized by rather open water which contains low, emergent vegetation, where any other larvicidal operation would have been impractical. We have never secured, with airplane dusting, effectual control of breeding in situations where the water surface is protected by dense, horizontally interlocking vegetation. The experimental dusting of such a situation was approximately 70 percent effective.

The cost of operating a dusting airplane varies considerably, but may be set at about $40 per hour. This is no inconsiderable sum, but considering that 33 acres per minute can be treated for $0.367 per acre by an airplane flying at 82 miles per hour, the rationale of airplane dusting becomes evident. The economy of the operation is dependent upon several factors, such as the distance the dust must be transported by airplane before dusting is begun; the number of flying hours during a season's work; and the size and nature of the acreage to be treated at routine intervals. The control problem must be large enough to justify airplane dusting.

In order to reduce nondusting flying time to a minimum we constructed four landing strips in the Lake Wheeler reservoir area at points convenient to the zone of operations, and the airplanes were loaded at these places. Reduction of the nondusting flying time increased the efficiency of the operation by allowing full advantage to be taken of the short, early morning period of the day when dusting was done.

One experimental flight at 75 feet produced excellent results and seems to indicate the feasibility of dusting at higher altitudes than has been our practice heretofore. Theoretically, the release of more concentrated paris green dusts at high altitudes should lower the cost of airplane dusting operations. We now believe that under optimum conditions our effective swath delivered at an altitude of 25 feet may be 300 feet in width, and that uniform distribution of concentrations of paris green of less than 1 pound per acre will produce excellent results. The width of the dust swath increases with the altitude at which the dust is liberated, within limits, and higher flying should, therefore, reduce the total flying hours. Increasing the pay load will also reduce nondusting flying.

It must be remembered, however, that perfect dusting conditions prevailed at the time of the experimental flight previously mentioned. This does not often occur. Even when there is no wind, the dust cloud tends to drift to some extent, and in our experience it is difficult to place the dust cloud accurately at altitudes higher than 30 feet. Accurate placement of the dust cloud is very necessary to prevent unnecessary waste of dust and to secure effective results.

The results obtained during the 1937 season from the experimental and routine airplane dusting indicate that certain phases of airplane dusting require further study. These studies should include the effect of liberating various dust mixtures at different heights for the purpose of determining the best concentration of paris green and the most effective altitude; the effect of drift with special reference to whether the paris green particles are evenly distributed with the diluent or reach the water surface at different places from the diluent dust particles; the possible influence various diluents may exert on the static electric charge developed on paris green particles as they descend in a dust cloud; and observations on paris green dust after it reaches the water surface, with special reference to its availability for larval ingestion.

In conclusion, we wish to emphasize our belief that airplane dusting for *Anopheles* control on impounded waters is a practical, effective, and economical operation under the conditions described. Like any other technical procedure its efficiency depends upon the utilization of the best procurable personnel and equipment, and careful, painstaking supervision of every detail of the operation.

RELIABILITY OF MEDICAL JUDGMENTS ON MALNUTRITION [1]

By MAYHEW DERRYBERRY, *Senior Public Health Statistician, United States Public Health Service*

The nutritional status of the population, and especially of children, is a public health problem that is receiving more and more attention. During the recent economic depression many surveys were made to determine the prevalence of malnutrition among groups in different localities, and often special programs for the improvement of the

[1] From the Division of Public Health Methods, National Institute of Health.

The data for this paper were collected during a study of school health programs by the Research Division of the American Child Health Association. The findings were first presented in terms of correlations in a monograph by Raymond Franzen entitled "Physical Measures of Growth and Nutrition," American Child Health Association, New York, 1929. They are repeated here in somewhat different form, in order to emphasize the practical significance of the material which, to date, seems to have been overlooked by many workers dealing with the problem of malnutrition among children. The author was a member of the research staff at the time of the original study, and the material presented in this paper was developed during his employ in the Association.

nutritional status of the population were instituted. Of late, studies have been undertaken to determine more specifically the extent of malnutrition under various social and environmental conditions. In many of the studies the results of the physical examinations routinely made in schools furnish the data on malnutrition, though in some instances the nutritional status of the groups studied has been specially determined by physicians employed for that purpose.

Regardless of the source of the data, the estimates of nutritional status have usually been based solely on clinical observations of the children as they appear at the time of the examination. In practically none of the studies has there been provision for the taking of a medical history, or the inclusion of a number of body measurements as an aid to the physician in arriving at a final estimate. This, of course, limits the value of the nutritional estimates that are made, but more extensive and thorough examinations have been considered impracticable because of the expense and time entailed.

Despite the limitations of nutritional estimates made during routine physical examinations, they form the bases for the conclusions reached in many well-known studies on the prevalence of malnutrition. The relative proportions of children who are in poor nutritional status in various localities have been reported from an analysis of such estimates. Likewise changes in the amount of undernourishment among children from one period to another have been determined from a summary of nutritional estimates for successive years. During the depression the annual changes in the proportion of children judged to be malnourished were used to show the effect of lowered economic conditions on the nutritional condition of children. Also the relative effectiveness of different administrative procedures in improving the nutritional status of children has been judged by comparing the nutritional estimates of groups subjected to varied regimes.

In addition to their use in studies these estimates have been, and still are, used in the school health service program for the selection of children to be given special consideration because of their alleged nutritional deficiency. This particular attention may include the giving of a supplementary midmorning lunch, follow-up work in the home, or the assignment to a nutrition class.

In view of the many vital decisions (both with reference to the general prevalence of malnutrition and with reference to specific children) that rest on the physician's estimates of nutritional condition, it seems advisable at this time to reemphasize the limitations of such nutritional estimates and the possibilities for error when records from routine examinations are the bases for either research conclusions or administrative action.

THE EXPERIMENTAL DATA

Three outstanding pediatricians connected with medical schools in New York City selected six experienced pediatricians to assist in the experiment. These six physicians were asked to examine independently the same group of 108 11-year old boys and rate their nutritional condition in terms of the Dunfermline scale of "Excellent," "Good," "Fair," and "Poor." The 108 boys represented the entire 11-year old population of a cooperating institution in the city. Both those who were residents in the institution and those who resided outside were included. So far as could be determined no factor of selection was operating to interfere with the representativeness of the sample.

Each boy was stripped to his waist and carefully examined by each of the six physicians. If at all in doubt, the physician had the privilege of completely disrobing a boy and making more complete observations. Each physician was allowed as much time as he chose for the examination before deciding upon the final nutritional rating.

The results of this investigation were disconcerting. The physicians differed markedly in the number of children which they found in poor nutritional condition. According to one of the physicians, 15 of the 108 were malnourished (i. e., recorded as "Poor" with reference to nutrition) while another found only 2 whom he considered malnourished. The other 4 physicians selected 12, 10, 7, and 6. But even more confusing was the fact that children classed as ma-l nourished by one physician frequently were not the same children that were rated malnourished by another physician. In fact, one of the boys rated "Poor" by the physician who found only two in the "Poor" condition group was not considered "Poor" by any one of the other physicians. In all there were 25 of the 108 boys rated "Poor" by at least 1 of the physicians, but only 1 who was so rated by the entire group of doctors. Only 3 of the 25 were rated "Poor" by as many as 4 of the 6 physicians. Two of the cases were given every rating in the scale; that is, one of the doctors rated them "Excellent," another rated them "Good," another "Fair," and the fourth "Poor." With such disagreement as this, one can truthfully say that whether a child is rated as malnourished or not depends more on the physician who is the examiner than it does on the actual condition of the child.

A similar investigation was carried out on 113 girls at an institution in New Jersey. Each girl was examined independently by five women physicians selected in the same manner as were the men. The examinations were made under the same favorable conditions that were provided for the first experiment.

In this experiment there was much more uniformity in the proportion of children found in the "Poor" nutrition group than was

true of the experiment with the men physicians. Each physician marked about 30 of the cases as malnourished (a rating of "Poor"), the actual numbers being 32, 32, 31, 31, and 26. The lack of agreement in the ratings of individual cases, however, was even more striking than in the first instance. Of the 113 children, there were 65 (over one-half) who were rated "Poor" by at least 1 of the physicians. There were only 6 of these 65 children, however, on whom all physicians agreed that the nutritional condition was poor. Again, it was found that two of the cases marked "Poor" by one physician were rated "Fair" by another, "Good" by another, and "Excellent" by a fourth physician.

Similar experiments were carried out with other physicians on smaller groups of children, but in each experiment the disagreements were equally great, *indicating that the rating of nutritional status which any child is given depends to a large extent on which doctor makes the rating.*

How serious are these disagreements in terms of the purposes for which ratings are usually made? Do they interfere with the determination of general trends, or the comparisons of findings in different localities? It is obvious from the first experiment that the proportion of children in any given locality who would be marked malnourished depends much more on the physician who examines the children than upon the actual amount of malnutrition present. If the physicians in the two localities differed as widely in their ratings as the two extreme physicians in the first experiment, then one of the localities would have reported over seven times as many malnourished children as the other when actually there could be no difference in the nutritional status of the two groups of children.

TABLE 1.—*Proportion of school children found malnourished by school physicians, New York City, 1927–34* [1]

Year	Number of children examined	Number malnourished	Percent malnourished	Year	Number of children examined	Number malnourished	Percent malnourished
1927	368, 353	49, 855	13. 5	1931	307, 438	52, 478	17. 0
1928	414, 594	56, 433	13. 6	1932	336, 903	71, 777	21. 1
1929	392, 425	52, 637	13. 4	1933	346, 074	68, 931	19. 9
1930	380, 928	61, 398	16. 1	1934	272, 897	49, 380	18. 1

[1] Reproduced by courtesy of the New York City Health Department.

An example of the way in which circumstances may influence the proportion of children recorded as malnourished is afforded by some data from New York City. Since 1927 annual tabulations have been made of the proportion of malnourished children found during the regular school examinations. These data have been used in previous publications as indicating an increase in malnutrition dur-

ing the depression period. From the figures in table 1 it is apparent that the two major increases in proportion of malnourished children occurred in 1930 and in 1932. In this connection it should be pointed out that an acting director of the school health service work was appointed during the latter part of 1929, and that he was superseded by a second acting director in 1931. Is it not possible that the increases in recorded malnutrition may have resulted from the stress placed on the subject by these new administrators? [2]

Thus the *change in the proportion* of children who are reported as malnourished from one time to another may depend upon the physician who makes the examination or the circumstances under which the rating was made.

The practical significance of these disagreements in terms of individual children is equally serious when the nutritional ratings are made the basis for selecting children to whom special services will be rendered, such as segregation in nutrition classes, special feeding, nursing visits to the home, and morning and afternoon rest periods. The choice of the children to receive these services may depend upon the particular physician who examined them. Suppose the 113 girls included in the experiment had been enrolled in a given school and had been examined during the routine examinations by one of the physicians in the experiment, whom we shall call Doctor A, and those rated "Poor" were selected for special consideration. Thirty-two would have been chosen. But if Doctor B had been the school physician she would have selected only 17 of those rated "Poor" by Doctor A and 15 others *not* selected by Doctor A. It may be assumed that the 32 children who were given the special consideration provided for the undernourished children would profit therefrom, but *which 32* should be given the attention? Are there not others who are more in need than many of the girls in either of these groups? Is it possible, therefore, to justify the extra expenditure for a special group of children selected on the basis of estimates that disagree so widely?

The portrayal of these wide disagreements in the judgments of physicians is not made with the intention of discrediting the physicians or of discounting the value of their judgments when properly made. In the best private practice, physicians do not often make such judgments of a child's condition on a single examination. They either know the clinical history of the child and his hereditary background, or they take time to obtain it. They are either acquainted with the child and his peculiarities of structure and function or they observe him over a sufficiently long period to learn the significance of his variations from the normal. But, when a physician must estimate a child's

[2] It is recognized that one cannot argue cause and effect because of two occurrences that happen together or in proper sequence, but this limitation applies equally well to the conclusion that the increase in malnutrition was caused by the depression.

nutritional status after a single brief examination, without a medical history, such as is ordinarily given in schools or on surveys his judgments are robbed of their value and the wide disagreements herein described arise.

The implications of the data are twofold. To the practical administrator interested in improving nutritional conditions in his community the findings are particularly significant. They indicate the futility of nutritional programs that give special attention to a few cases regarded as deficient in nutritional status, on the basis of a routine physical examination by a physician. The errors in the doctor's estimates are too great to justify the extra effort given to the individuals chosen. Instead, public programs might be focused on the discovery of those individuals who have faulty food habits, or whose behavior symptoms, such as failure to gain in weight, lack of stamina, and lassitude, suggest the need for medical advice. The physician would concentrate on these cases, giving them a detailed medical examination supplemented by history and such laboratory tests as are indicated, in the interest of *preventing* the occurrence of malnutrition as well as correcting it after it occurs.

To the public health analyst the data show the high probability of error when physicians' judgments based on a single examination of nutritional status serve as the data for conclusions concerning either the prevalence of malnutrition, or the relative value of various administrative programs in improving the nutritional status of groups. It would seem, therefore, highly desirable to discontinue studies or surveys of nutritional status where physicians' judgments from a single inspection are being used as the original data for conclusions, and to concentrate on the development and validation of better methods of determining the nutritional status of children.

SUMMARY

In routine examinations, physicians differ widely in their estimates of the nutritional status of the same children. The differences in judgments are so great that estimates based on a single examination are of little value in determining the relative amount of malnutrition among any group of children at any one time or changes in the amount from one time to another. Neither are these nutritional estimates reliable bases for determining which children of a group are malnourished.

It is therefore suggested that practical nutritional programs be focused on correcting the faulty food habits of children rather than expending energy on routine examinations to determine nutritional status. It is also proposed that research workers concentrate on the construction of valid methods of determining nutritional status rather than making surveys which are of doubtful significance because of the inaccuracies of the estimates upon which their findings are based.

PROVISIONAL MORTALITY STATISTICS FOR 1936, BY CAUSE

The accompanying table, issued by the Bureau of the Census,[1] gives the number of deaths (exclusive of stillbirths) and the death rates, by important causes, for the United States for 1936, and comparisons with 1934 and 1935. The figures for 1936 are provisional; those for the other years are final.

A table giving the total numbers of deaths and the death rates for all causes, by States, for 1936 and 1935, and a summary for the expanding registration area since it was established in 1880, by years since 1900 and by census years for 1880, 1890, and 1900, was published in the Public Health Reports for February 4, 1938 (pp. 168–171).

As compared with 1934 and 1935, the death rates for 1936 were most favorable with respect to the common communicable diseases, excepting influenza. Pneumonia also recorded a higher death rate than in either of the 2 preceding years. Especially notable are the higher rates for two of the chronic, so-called "degenerative," diseases. The rate for heart diseases increased from 46.3 per 100,000 in 1934 to 56.1 in 1936, and that for cerebral hemorrhage from 77.3 in 1934 and 76.6 in 1935 to 81.2 in 1936. The rate for nephritis remained approximately the same as in the 2 preceding years, but the cancer rate was 111.1 per 100,000 as compared with 106.2 in 1934 and 107.9 in 1935. The death rate from automobile accidents increased to 27.8, as compared with a rate of 26.8 in each of the 2 preceding years.

Number of deaths (exclusive of stillbirths) and death rates, from selected causes, United States, 1934–36

[Number and rate for 1936 are provisional]

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1936	1935	1934	1936	1935	1934
Total	1,479,228	1,392,752	1,396,903	1,151.8	1,092.2	1,103.2
Typhoid and paratyphoid fever (1, 2)	3,182	3,531	4,237	2.5	2.8	3.3
Smallpox (6)	35	25	24	(1)	(1)	(1)
Measles (7)	1,267	3,907	6,986	1.0	3.1	5.5
Scarlet fever (8)	2,493	2,718	2,524	1.9	2.1	2.0
Whooping cough (9)	2,666	4,753	7,518	2.1	3.7	5.9
Diphtheria (10)	3,065	3,901	4,159	2.4	3.1	3.3
Influenza (11)	33,810	28,230	21,868	26.3	22.1	17.3
Dysentery (13)	3,122	2,436	3,373	2.4	1.9	2.7
Erysipelas (15)	2,006	2,106	1,947	1.6	1.7	1.5
Acute poliomyelitis and acute polioencephalitis (16)	780	1,040	852	.6	.8	.7
Lethargic or epidemic encephalitis (17)	851	857	923	.7	.7	.7
Epidemic cerebrospinal meningitis (18)	3,020	2,657	1,272	2.4	2.1	1.0
Tuberculosis of respiratory system (23)	65,042	63,488	64,706	50.6	49.8	51.1
Tuberculosis of meninges and central nervous system (24)	1,841	1,963	2,109	1.4	1.5	1.7
Other forms of tuberculosis (25–32)	4,643	4,629	4,794	3.6	3.6	3.8
Syphilis (34)	12,612	11,590	11,726	9.8	9.1	9.3
Malaria (38)	3,943	4,435	4,520	3.1	3.5	3.6
Cancer and other malignant tumors (45–53)	142,612	137,649	134,428	111.0	107.9	106.2
Rheumatism and gout (56–58)	4,005	3,961	4,027	3.1	3.1	3.2
Diabetes mellitus (59)	30,406	28,364	28,000	23.7	22.2	22.1

1 Less than 1/10 of 1 per 100,000 estimated population.

[1] Vital Statistics—Special Reports, Vol. 5, No. 14, p. 37, January 28, 1938.

Number of deaths (exclusive of stillbirths) and death rates, from selected causes, United States, 1934–36—Continued

Cause of death	Number of deaths			Rate per 100,000 estimated population		
	1936	1935	1934	1936	1935	1934
Pellagra (62)	3,740	3,543	3,602	2.9	2.8	2.8
Diseases of the blood and blood-making organs (70–74)	10,396	10,069	10,250	8.1	7.9	8.1
Alcoholism (75)	3,714	3,349	3,655	2.9	2.6	2.9
Other diseases of nervous system and of organs of special sense (78–81, 83–89)	26,981	26,007	26,255	21.0	20.4	20.7
Cerebral hemorrhage and softening (82*a*, *c*)	104,333	97,637	97,868	81.2	76.6	77.3
Cerebral embolism and thrombosis (82*b*)	8,456	7,375	6,392	6.6	5.8	5.0
Hemiplegia and other paralysis, cause unspecified (82*d*)	3,772	4,046	3,850	2.9	3.2	3.0
Diseases of the heart (90–95)	341,350	312,333	303,724	265.8	244.9	239.9
Other diseases of the circulatory system (96–103)	29,325	28,453	29,572	22.8	22.3	23.4
Other diseases of the respiratory system (104, 105, 110–114)	11,197	10,196	10,161	8.7	8.0	8.0
Bronchitis (106)	4,342	3,966	4,145	3.4	3.1	3.3
Bronchopneumonia (107)	47,288	42,621	41,923	36.8	33.4	33.1
Other forms of pneumonia (108, 109)	72,090	61,774	58,650	56.1	48.4	46.3
Diarrhea and enteritis (under 2 years) (119)	15,613	13,204	17,019	12.2	10.4	13.4
Diarrhea and enteritis (2 years and over) (120)	5,338	4,760	6,192	4.2	3.7	4.9
Appendicitis (121)	16,480	16,142	18,129	12.8	12.7	14.3
Hernia, intestinal obstruction (122)	13,433	13,161	13,023	10.5	10.3	10.3
Cirrhosis of the liver (124)	10,587	10,083	9,733	8.2	7.9	7.7
Other diseases of the digestive system (115–118, 123, 125–129)	32,125	32,309	31,865	25.0	25.3	25.2
Nephritis (130–132)	106,865	103,516	106,584	83.2	81.2	84.2
Other diseases of the genitourinary system (133–138)	16,049	15,196	14,802	12.5	11.9	11.7
Diseases of female genital organs (not specified as venereal) (139)	3,965	3,995	3,785	3.1	3.1	3.0
Puerperal septicemia (140, 142*a*, 145)	4,606	5,174	5,118	3.6	4.1	4.0
Other puerperal causes (141, 142*b*–144, 146–150)	7,576	7,370	7,741	5.9	5.8	6.1
Congenital malformations, diseases of early infancy (157–161)	63,857	63,054	66,988	49.7	49.4	52.9
Suicide (163–171)	18,293	18,214	18,828	14.2	14.3	14.9
Homicide (172–175)	10,232	10,587	12,055	8.0	8.3	9.5
Automobile accidents (primary) (210)	35,761	34,183	33,980	27.8	26.8	26.8
Railroad and a tomobile collisions (206)	1,697	1,587	1,457	1.3	1.2	1.2
Streetcar and automobile collisions (208)	269	253	332	.2	.2	.3
Motorcycle accidents (211)	362	346	332	.3	.3	.3
Other accidents, etc. (176–198, 201–205, 207, 209, 212–214)	72,159	63,598	65,038	56.2	49.9	51.4
Unknown and ill-defined (199, 200)	21,110	20,552	20,929	16.4	16.1	16.5
All other causes	34,466	31,859	32,933	26.8	25.0	25.5

DEATHS DURING WEEK ENDED JANUARY 29, 1938

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Jan. 29, 1938	Corresponding week, 1937
Data from 86 large cities of the United States:		
Total deaths	9,151	[1] 10,682
Average for 3 prior years	9,539	
Total deaths, first 4 weeks of year	36,669	44,052
Deaths under 1 year of age	536	[1] 616
Average for 3 prior years	562	
Deaths under 1 year of age, first 4 weeks of year	2,159	2,608
Data from industrial insurance companies:		
Policies in force	69,793,644	69,041,422
Number of death claims	14,587	15,769
Death claims per 1,000 policies in force, annual rate	10.9	11.9
Death claims per 1,000 policies, first 4 weeks of year, annual rate	10.0	11.8

[1] Data for 85 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers.

In these and the following tables a zero (0) is to be interpreted to mean that no cases or deaths occurred while leaders (------) indicate that cases or deaths may have occurred, although none were reported.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Feb. 5, 1938, and Feb. 6, 1937

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb. 5, 1938	Week ended Feb. 6, 1937	Week ended Feb. 5, 1938	Week ended Feb. 6, 1937	Week ended Feb. 5, 1938	Week ended Feb. 6, 1937	Week ended Feb. 5, 1938	Week ended Feb. 6, 1937
New England States:								
Maine	------	1	4	1,688	150	26	0	0
New Hampshire	------	------	2	7	79	86	0	0
Vermont	------	------	------	------	240	4	0	0
Massachusetts	3	4	------	------	136	903	2	3
Rhode Island	------	1	------	------	4	198	0	0
Connecticut	4	3	12	536	11	346	0	1
Middle Atlantic States:								
New York	31	46	[1] 16	[1] 119	4,706	299	12	14
New Jersey	19	17	13	117	1,315	708	1	3
Pennsylvania	50	52	------	------	7,960	209	4	8
East North Central States:								
Ohio	21	46	------	242	1,266	66	0	7
Indiana	49	16	------	294	724	9	1	2
Illinois	49	46	54	275	4,747	11	3	9
Michigan	10	9	6	10	964	35	0	2
Wisconsin	2	1	51	1,028	2,001	23	0	1
West North Central States:								
Minnesota	2	4	5	4	19	29	1	0
Iowa	2	4	12	425	45	3	1	3
Missouri	20	25	203	1,487	1,231	15	3	7
North Dakota	1	------	2	363	19	1	3	4
South Dakota	3	------	------	94	------	------	2	2
Nebraska	11	7	------	48	5	------	0	0
Kansas	19	5	10	2,326	395	3	0	5
South Atlantic States:								
Delaware	------	1	------	7	33	173	0	6
Maryland [2]	11	8	28	398	21	309	0	5
District of Columbia	5	14	2	42	13	32	0	6
Virginia	25	31	------	------	547	183	1	5
West Virginia	13	21	42	1,313	232	10	4	5
North Carolina	36	36	83	27	1,241	156	4	5
South Carolina [3]	5	3	636	968	307	40	0	2
Georgia [3]	7	8	------	763	456	------	2	4
Florida [3]	17	12	10	44	223	1	0	2
East South Central States:								
Kentucky	8	8	77	358	568	50	16	8
Tennessee	13	19	172	720	645	14	4	4
Alabama [3]	17	15	289	614	215	2	6	1
Mississippi [3]	5	8	------	------	------	------	0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Feb. 5, 1938, and Feb. 6, 1937—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Feb. 5, 1938	Week ended Feb. 6, 1937	Week ended Feb. 5, 1938	Week ended Feb. 6, 1937	Week ended Feb. 5, 1938	Week ended Feb. 6, 1937	Week ended Feb. 5, 1938	Week ended Feb. 6, 1937
West South Central States:								
Arkansas	17	3	242	946	204	2	1	1
Louisiana	12	14	24	291	1	6	3	0
Oklahoma [4]	20	10	169	874	48	4	2	4
Texas [3]	80	60	916	4,481	140	426	4	8
Mountain States:								
Montana	1	2		1,035	9	19	0	1
Idaho		1	6	184	5	76	0	0
Wyoming		1		80	6	1	1	0
Colorado	5	5			89	5	0	1
New Mexico	2	5	9	244	163	20	2	0
Arizona	9	5	117	1,113	3	294	0	0
Utah [2]	3	1			123	39	0	0
Pacific States:								
Washington	5	5	2	430	28	42	0	2
Oregon	4	1	59	1,111	19	11	1	1
California	32	33	100	7,762	311	91	2	9
Total	648	617	3,323	32,868	31,667	4,980	86	145
First 5 weeks of the year	3,409	3,124	14,951	141,696	102,936	21,770	463	705

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid and paratyphoid fevers		Whooping cough
	Week ended Feb. 5, 1938	Week ended Feb. 6, 1937	Week ended Feb. 5, 1938	Week ended Feb. 6. 1937	Week ended Feb. 5, 1938	Week ended Feb. 6, 1937	Week ended Feb. 5, 1938	Week ended Feb. 6, 1937	Week ended Feb. 5, 1938
New England States:									
Maine	0	0	23	25	0	0	0	2	71
New Hampshire	1	0	6	6	0	0	0	0	4
Vermont	0	0	13	81	0	0	0	0	18
Massachusetts	0	0	274	264	0	0	2	0	111
Rhode Island	0	0	21	64	0	0	0	0	34
Connecticut	0	0	93	106	0	0	2	0	67
Middle Atlantic States:									
New York	1	1	661	763	0	2	6	11	472
New Jersey	0	1	143	161	0	0	1	1	144
Pennsylvania	0	1	653	496	0	0	21	8	411
East North Central States:									
Ohio	0	0	316	408	1	9	2	3	115
Indiana	0	0	211	197	69	5	1	0	18
Illinois	0	1	714	628	44	31	4	6	93
Michigan	1	2	474	500	19	1	4	8	132
Wisconsin	1	0	185	295	2	21	0	1	129
West North Central States:									
Minnesota	0	0	137	151	16	3	1	0	33
Iowa	0	0	285	236	33	43	4	0	42
Missouri	1	0	229	268	31	63	4	2	108
North Dakota	0	0	33	40	29	13	0	1	31
South Dakota	0	0	17	75	20	11	0	0	14
Nebraska	0	0	70	79	8	4	0	0	8
Kansas	0	1	226	329	10	29	1	0	113
South Atlantic States:									
Delaware	0	0	6	6	0	0	0	0	21
Maryland [3]	1	0	56	41	0	0	1	3	64
District of Columbia	0	0	21	13	0	0	0	0	9
Virginia	0	1	30	45	3	0	2	12	97
West Virginia	1	1	34	46	0	0	4	5	99
North Carolina	0	0	39	40	1	1	4	6	281
South Carolina [3]	2	0	7	10	0	0	2	2	57
Georgia [3]	0	6	13	20	0	0	2	3	59
Florida [3]	0	0	13	7	0	0	4	0	55

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Feb. 5, 1938, and Feb. 6, 1937—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid and paratyphoid fevers		Whooping cough
	Week ended Feb. 5, 1938	Week ended Feb. 6, 1937	Week ended Feb. 5, 1938	Week ended Feb. 6, 1937	Week ended Feb. 5, 1938	Week ended Feb. 6, 1937	Week ended Feb. 5, 1938	Week ended Feb. 6, 1937	Week ended Feb. 5, 1938
East South Central States:									
Kentucky	1	1	76	24	32	0	2	2	71
Tennessee	0	0	40	19	3	1	1	6	46
Alabama [3]	0	0	14	19	2	1	6	4	14
Mississippi [2]	3	3	4	7	17	1	4	1	
West South Central States:									
Arkansas	0	2	8	10	12	2	4	1	27
Louisiana	0	0	15	5	0	0	11	6	2
Oklahoma [4]	1	0	52	34	34	0	2	7	33
Texas [3]	0	1	162	102	62	7	11	8	269
Mountain States:									
Montana	0	0	35	60	9	14	0	0	31
Idaho	0	0	17	13	14	8	2	0	19
Wyoming	0	0	27	15	1	11	0	1	25
Colorado	0	0	24	84	6	2	1	0	13
New Mexico	0	0	5	24	0	2	3	3	35
Arizona	1	0	13	22	1	0	1	0	37
Utah [2]	0	0	106	23	5	0	0	0	83
Pacific States:									
Washington	1	0	89	28	32	0	1	1	122
Oregon	2	0	78	45	27	20	0	0	30
California	3	2	236	273	67	8	5	4	261
Total	21	24	6,004	6,207	610	313	126	118	4,028
First 5 weeks of year	106	121	29,791	29,873	3,019	1,457	590	611	19,946

1 New York City only.
2 Week ended earlier than Saturday.
3 Typhus fever, week ended Feb. 5, 1938, 20 cases, as follows: South Carolina, 1; Georgia, 6; Florida, 6; Alabama, 3; Texas, 4.
4 Figures for 1937 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
December 1937										
Massachusetts	4	18			349		1	926	0	19
Puerto Rico	0	32	143	7,094	72		0	1	0	22
January 1938										
Connecticut	6	24	43		61		1	345	0	3
Delaware	0	4	2		28		0	68	0	0
North Carolina	13	124	134	1	3,434	27	3	218	4	23

Summary of monthly reports from States—Continued

December 1937

	Cases
Massachusetts:	
Chickenpox	1,670
Dysentery, amoebic	1
Dysentery, bacillary	19
Encephalitis, epidemic or lethargic	1
German measles	72
Mumps	298
Ophthalmia neonatorum	73
Paratyphoid fever	4
Rabies in animals	4
Septic sore throat	13
Tetanus	1
Trichinosis	1
Undulant fever	8
Whooping cough	732
Puerto Rico:	
Chickenpox	21
Dysentery	79
Filariasis	2
Mumps	4
Tetanus	9
Tetanus, infantile	1
Whooping cough	109

January 1938

	Cases
Chickenpox:	
Connecticut	891
Delaware	138
North Carolina	991
Conjunctivitis, infectious:	
Connecticut	3
Dysentery:	
Connecticut (bacillary)	11
German measles:	
Connecticut	16
North Carolina	38
Lead poisoning:	
Connecticut	1
Mumps:	
Connecticut	1,061
Delaware	60
Ophthalmia neonatorum:	
Connecticut	2
North Carolina	1
Paratyphoid fever:	
Connecticut	2
North Carolina	5

January 1938—Contd.

	Cases
Rabies in animals:	
Connecticut	2
Rocky Mountain spotted fever:	
North Carolina	1
Septic sore throat:	
Connecticut	16
North Carolina	14
Trichinosis:	
Connecticut	2
Tularaemia:	
North Carolina	6
Typhus fever:	
North Carolina	11
Undulant fever:	
Connecticut	6
Vincent's infection:	
North Carolina	3
Whooping cough:	
Connecticut	172
Delaware	32
North Carolina	1,470

WEEKLY REPORTS FROM CITIES

City reports for week ended Jan. 29, 1938

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Data for 90 cities:											
5-year average	225	1,621	196	2,826	1,057	1,967	29	402	20	1,178	--------
Current week [1]	185	[2] 304	77	4,995	859	1,702	41	354	19	998	--------
Maine:											
Portland	0	------	0	6	4	0	0	2	0	19	18
New Hampshire:											
Concord	0	------	0	0	1	0	0	0	0	1	11
Manchester	1	------	2	0	4	16	0	0	0	0	40
Nashua	0	------	--------	0	-------	0	0	-------	0	0	16
Vermont:											
Barre	-------	------	--------	-------	-------	-------	-------	-------	-------	-------	-------
Burlington	0	------	0	1	0	1	0	0	0	1	10
Rutland	0	------	0	0	0	0	0	0	0	0	2
Massachusetts:											
Boston	1	------	2	103	17	92	0	11	0	18	184
Fall River	0	------	0	1	3	3	0	1	0	11	33
Springfield	0	------	0	1	5	1	0	2	0	13	41
Worcester	0	------	0	4	5	6	0	4	1	0	55
Rhode Island:											
Pawtucket	0	------	0	0	2	4	0	0	0	0	15
Providence	0	------	0	0	11	13	0	4	0	24	87
Connecticut:											
Bridgeport	0	1	1	0	2	13	0	0	0	0	30
Hartford	0	2	0	0	12	27	0	2	0	5	65
New Haven	0	------	0	0	7	3	0	0	0	3	51
New York:											
Buffalo	0	------	0	2	16	30	0	4	0	23	152
New York	32	14	7	148	124	278	0	82	4	208	1,573
Rochester	0	2	0	3	4	6	0	2	0	0	71
Syracuse	2	------	0	10	4	7	0	3	0	10	62
New Jersey:											
Camden	0	------	0	51	1	5	0	2	0	0	40
Newark	0	2	1	15	13	18	0	6	0	16	118
Trenton	0	1	0	22	7	4	0	0	0	5	41
Pennsylvania:											
Philadelphia	3	4	3	260	31	130	0	21	1	32	558
Pittsburgh	3	7	6	304	28	52	0	12	0	27	218
Reading	0	------	0	1	1	4	0	3	0	1	25
Scranton	0	------	--------	37	-------	1	0	-------	0	7	--------

[1] Figures for Barre, Vt., estimated; report not received.
[2] Includes delayed reports.

City reports for week ended Jan. 29, 1938—Continued

State and city	Diphtheria cases	Influenza Cases	Influenza Deaths	Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
Ohio:											
Cincinnati	4	------	1	0	18	15	0	10	0	8	147
Cleveland	4	13	1	116	22	59	0	5	1	29	210
Columbus	1	------	0	96	5	9	0	4	0	6	85
Toledo	0	3	2	66	5	18	0	6	0	18	81
Indiana:											
Anderson	0	------	0	0	1	7	10	0	0	11	5
Fort Wayne	1	------	0	3	4	5	0	1	0	0	33
Indianapolis	40	------	2	37	19	12	0	5	0	7	125
Muncie	0	------	0	60	5	0	0	0	0	0	14
South Bend	1	------	0	3	2	6	0	2	0	0	19
Terre Haute	2	------	0	7	0	1	1	0	0	0	17
Illinois:											
Alton	0	------	0	2	0	4	0	1	0	0	3
Chicago	13	14	0	1,467	51	259	0	35	0	41	755
Elgin	0	------	0	2	2	8	0	1	0	4	8
Moline	1	1	1	34	1	9	0	1	0	0	9
Springfield	0	2	0	68	5	8	9	0	0	0	23
Michigan:											
Detroit	10	6	2	474	22	191	0	11	2	77	255
Flint	0	------	0	3	8	39	0	1	0	19	28
Grand Rapids	0	------	1	9	6	23	0	0	0	8	46
Wisconsin:											
Kenosha	0	------	0	1	3	4	0	0	0	1	7
Madison	0	------	0	1	0	3	0	0	0	0	9
Milwaukee	2	------	0	747	10	23	0	3	0	26	120
Racine	0	------	0	2	0	9	0	0	0	4	13
Superior	0	------	0	0	2	3	0	0	0	0	9
Minnesota:											
Duluth	0	------	1	1	2	5	0	0	0	11	18
Minneapolis	0	------	2	2	10	22	1	1	0	3	107
St. Paul	0	------	0	1	12	5	16	1	0	3	59
Iowa:											
Cedar Rapids	0	------	------	0	------	2	0	------	0	3	------
Davenport	0	------	------	19	------	1	0	------	0	0	------
Des Moines	0	------	------	1	------	31	0	------	0	2	31
Sioux City	0	------	------	0	------	2	0	------	0	1	------
Waterloo	0	------	------	0	------	4	1	------	0	0	------
Missouri:											
Kansas City	2	------	1	47	20	23	0	5	0	1	128
St. Joseph	0	------	0	0	3	2	0	0	0	0	24
St. Louis	8	------	4	103	25	64	2	4	1	1	284
North Dakota:											
Fargo	0	------	0	2	0	4	0	0	0	1	6
Grand Forks	0	------	------	0	------	2	0	------	0	0	------
Minot	0	------	0	0	0	1	1	0	0	11	7
South Dakota:											
Aberdeen	0	------	------	0	------	0	0	------	0	8	------
Nebraska:											
Omaha	0	------	0	0	9	8	0	1	0	1	62
Kansas:											
Lawrence	0	------	0	0	0	0	0	0	0	2	8
Topeka	0	------	1	2	6	1	0	0	0	16	25
Wichita	1	------	0	1	9	7	0	0	0	1	32
Delaware:											
Wilmington	1	------	0	8	2	5	0	0	0	5	35
Maryland:											
Baltimore	10	17	7	6	32	31	0	10	1	21	254
Cumberland	0	------	0	0	2	0	0	0	0	4	12
Frederick	0	------	0	0	0	0	0	0	0	0	2
District of Columbia:											
Washington	4	3	2	12	21	15	0	12	0	5	153
Virginia:											
Lynchburg	2	------	0	0	0	0	0	1	0	0	14
Norfolk	2	------	0	75	2	8	0	4	0	1	29
Richmond	0	------	2	59	10	4	0	1	0	0	61
Roanoke	1	------	1	2	0	0	0	1	1	0	15
West Virginia:											
Charleston	0	------	0	23	3	1	0	1	0	1	22
Huntington	1	------	------	11	------	2	0	------	0	1	------
Wheeling	0	------	0	4	2	4	0	2	0	1	22
North Carolina:											
Gastonia	0	------	------	1	------	0	0	------	0	0	------
Raleigh	1	------	0	0	3	0	0	2	0	24	18
Wilmington	0	------	0	1	2	2	0	0	0	8	17
Winston-Salem	1	------	0	4	0	0	0	0	0	41	21

City reports for week ended Jan. 29, 1938—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
South Carolina:											
Charleston	0	24	1	56	4	0	0	0	1	2	22
Florence	0			1	2	0	0		1	0	13
Greenville	0			2	1	1	0		0	8	4
Georgia:											
Atlanta	3	15	0	128	5	4	0	2	0	2	84
Brunswick	0		0	0	0	0	0	0	0	0	
Savannah	0	[1] 114	2	10	3	3	0	2	0	2	41
Florida:											
Miami	1	1	1	52	2	0	0	4	0	0	42
Tampa	2	2	2	0	2	1	0	1	1	0	27
Kentucky:											
Ashland	0			14		0	0		0	3	
Covington	0	1	0	2	1	1	0	1	0	2	16
Lexington	0	3		0	3	0	0	1	0	0	18
Louisville	3	10	1	219	7	51	0	4	0	13	66
Tennessee:											
Knoxville	3	2	1	11	3	2	0	1	0	0	27
Memphis	1	1	1	186	6	2	0	8	0	3	90
Nashville	0		2	10	4	2	0	1	0	2	47
Alabama:											
Birmingham	0	9	2	53	14	5	0	3	0	1	71
Mobile	0		5	3	1	1	0	0	0	0	27
Montgomery	0	5		11		1	0		0	1	
Arkansas:											
Fort Smith	0			5		0	0		0	1	
Little Rock	0		0	100	10	0	0	0	0	1	12
Louisiana:											
Lake Charles	0		0	0	0	1	0	0	0	1	3
New Orleans	7	10	2	2	25	6	0	15	1	2	192
Shreveport	0		0	0	19	3	0	0	1	0	72
Oklahoma:											
Oklahoma City	1		1	0	4	7	0	1	0	0	41
Tulsa	1			2		4	0		0	9	
Texas:											
Dallas	2	3	3	3	9	7	0	1	0	1	67
Fort Worth	2		2	1	8	7	1	0	0	3	47
Galveston	0		0	0	1	0	0	1	0	0	9
Houston	3		0	0	8	5	0	4	1	0	73
San Antonio	3		1	0	13	1	0	10	0	0	86
Montana:											
Billings	0		0	0	0	0	0	0	0	0	4
Great Falls	0		0	0	7	2	2	0	0	12	15
Helena	0		0	1	0	0	0	0	0	4	6
Missoula	0		0	0	1	1	0	0	0	0	2
Idaho:											
Boise	0		0	0	2	0	1	0	0	0	11
Colorado:											
Colorado Springs	0		0	0	0	3	0	1	0	7	14
Denver	6		1	150	9	14	0	2	0	1	92
Pueblo	1		0	2	1	0	0	0	0	3	5
New Mexico:											
Albuquerque	0		0	13	0	0	0	1	1	5	9
Utah:											
Salt Lake City	0		1	24	2	11	1	0	0	1	42
Washington:											
Seattle	3		1	2	6	6	0	1	0	41	83
Spokane	0		0	0	1	0	1	0	1	8	30
Tacoma	0		0	0	1	11	2	0	0	11	28
Oregon:											
Portland	0	2	1	1	5	24	0	2	0	0	90
Salem	0	3		0		1	0		0	0	
California:											
Los Angeles	3	20	4	10	39	44	4	7	1	16	350
Sacramento	0	13	0	0	7	1	0	2	0	47	37
San Francisco	1	5	1	1	13	10	1	14	0	45	202

[1] Includes delayed reports.

City reports for week ended Jan. 29, 1938—Continued

State and city	Meningococcus meningitis		Poliomyelitis cases	State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths			Cases	Deaths	
New York:				Kentucky:			
Buffalo	3	1	0	Louisville	0	0	1
New York	4	1	1	Tennessee:			
Pennsylvania:				Memphis	1	2	0
Philadelphia	1	0	0	Alabama:			
Pittsburgh	1	0	0	Birmingham	3	0	0
Illinois:				Louisiana:			
Chicago	3	0	0	New Orleans	2	1	1
Michigan:				Shreveport	0	3	0
Detroit	1	0	0	Oklahoma:			
Minnesota:				Oklahoma City	0	0	1
Minneapolis	0	0	1	Texas:			
Iowa:				San Antonio	2	1	0
Des Moines	1	0	0	Utah:			
Missouri:				Salt Lake City	0	1	0
Kansas City	1	0	0	Oregon:			
St. Louis	0	1	0	Portland	0	1	0
Maryland:				California:			
Baltimore	2	1	1	San Francisco	0	1	0

Dengue.—Cases: Charleston, S. C., 2.
Encephalitis, epidemic or lethargic.—Cases: St. Louis, 1; Washington, 1.
Pellagra.—Cases: Florence, 1; Atlanta, 3; Brunswick, 1; Savannah, 5; Memphis, 2; San Francisco, 1.
Typhus fever.—Cases: Charleston, S. C., 1; Savannah, 1.

FOREIGN AND INSULAR

FINLAND

Communicable diseases—December 1937.—During the month of December 1937, cases of certain communicable diseases were reported in Finland as follows:

Disease	Cases	Disease	Cases
Diphtheria	468	Poliomyelitis	14
Dysentery	7	Scarlet fever	823
Influenza	2,809	Typhoid fever	14
Paratyphoid fever	36	Undulant fever	1

GERMANY

Elmshorn—Psittacosis.—During the period December 12, 1937, to January 8, 1938, 4 cases of psittacosis with 1 death occurred in Elmshorn, a small town near Hamburg, Germany. About 12 birds belonging to a private dealer became sick and all were killed. The report stated that full eradicative measures had been taken.

ITALY

Communicable diseases—4 weeks ended December 5, 1937.—During the 4 weeks ended December 5, 1937, cases of certain communicable diseases were reported in Italy as follows:

Disease	Nov. 8-14		Nov. 15-21		Nov. 22-28		Nov. 29-Dec. 5	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	20	18	16	14	17	16	17	17
Cerebrospinal meningitis	10	8	15	14	17	15	8	8
Chickenpox	216	86	220	84	321	103	317	109
Diphtheria	972	424	984	438	853	408	914	435
Dysentery	33	20	36	20	41	22	38	21
Hookworm disease	19	11	6	5	3	3	5	5
Lethargic encephalitis					1	1		
Measles	781	177	1,066	199	1,082	211	1,680	247
Mumps	119	50	220	81	178	72	214	73
Paratyphoid fever	111	81	114	84	98	73	98	74
Poliomyelitis	48	42	46	36	31	27	33	27
Puerperal fever	35	35	30	28	43	43	31	30
Scarlet fever	456	171	368	145	368	158	328	123
Typhoid fever	778	420	754	391	627	360	545	328
Undulant fever	35	32	39	30	40	30	40	35
Whooping cough	251	73	258	81	286	96	237	83

JAMAICA

Communicable diseases—4 weeks ended January 22, 1938.—During the 4 weeks ended January 22, 1938, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Cerebrospinal meningitis		3	Poliomyelitis		1
Chickenpox	8	7	Puerperal septicemia		2
Diphtheria	3	1	Scarlet fever		7
Dysentery (amoebic)	4	4	Tuberculosis	38	92
Leprosy	1	4	Typhoid fever	5	20

PANAMA CANAL ZONE

Notifiable diseases—October–December 1937.—During the months of October, November, and December, 1937, certain notifiable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities, as follows:

Disease	October		November		December	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chickenpox	7		5		6	
Diphtheria	4		13		3	
Dysentery (amoebic)	3	2	8	1	11	
Dysentery (bacillary)	5	3	2	1	7	1
Leprosy	2				1	
Lethargic encephalitis			2			
Malaria	84	4	72	3	85	5
Measles	67		30		13	
Meningococcus meningitis	2			1		
Mumps	67		31		53	
Pneumonia		33		18		23
Relapsing fever			1			
Scarlet fever	2				2	
Tuberculosis		35		21		32
Typhoid fever	3	1	3	1	3	1
Whooping cough	[1] 14	2	[1] 11	2	[1] 7	1

[1] In Canal Zone only.

YUGOSLAVIA

Communicable diseases—4 weeks ended January 2, 1938.—During the 4 weeks ended January 2, 1938, certain communicable diseases were reported in Yugoslavia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	20	3	Paratyphoid fever	18	
Cerebrospinal meningitis	19	4	Poliomyelitis	1	
Diphtheria and croup	992	80	Scarlet fever	317	2
Dysentery	16	3	Sepsis	9	6
Erysipelas	164	6	Tetanus	15	7
Lethargic encephalitis	2		Typhoid fever	584	55
Measles	135		Typhus fever	21	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for January 28, 1938, pages 144–159. A similar cumulative table will appear in future issues of the PUBLIC HEALTH REPORTS for the last Friday of each month.

Cholera

India—Rangoon.—During the week ended January 29, 1938, 1 fatal case of cholera was reported in Rangoon, India.

Indochina (French).—During the week ended January 29, 1938, 19 cases of cholera were reported in Annam Province and 9 cases of cholera were reported in Tonkin Province, French Indochina.

Plague

Hawaii Territory—Island of Hawaii—Hamakua District—Paauhau Sector.—A rat found on January 24, 1938, in Paauhau Sector, Hamakua District, Island of Hawaii, Hawaii Territory, has been proved positive for plague.

India—Allahabad.—During the week ended January 29, 1938, 1 fatal case of plague was reported in Allahabad, India.

Siam—Correction.—The report of 57 cases of plague with 57 deaths for the week ended October 2, 1937, in the Provinces of Siam, published on pages 1873, 1955, and 147 of the PUBLIC HEALTH REPORTS for December 17, and 31, 1937, and January 28, 1938, respectively, is an error. No plague was reported in Siam for this period.

Smallpox

Iraq—Amara Province.—During the week ended January 15, 1938, 6 cases of smallpox were reported in Amara Province, Iraq.

Yellow Fever

Brazil—Sao Paulo State—Cayua.—According to information dated February 8, 1938, yellow fever is present in Cayua, Sao Paulo State, Brazil.

Ivory Coast—Abidjan.—On February 2, 1938, 1 suspected case of yellow fever was reported in Abidjan, Ivory Coast.

Nigeria—Ijebu Ode.—On January 15, 1938, 1 case of yellow fever was reported in Ijebu Ode, Nigeria.

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